

CURRICULUM VITAE – MONA ZEHNI

CONTACT INFORMATION	✉ mzehni2@illinois.edu 📄 mzehni2.web.engr.illinois.edu	
EDUCATION	University of Illinois at Urbana-Champaign (IL, USA) Ph.D. Candidate in Electrical Engineering Advisors : Prof. Zhizhen Zhao, Prof. Minh N. Do Sharif University of Technology (Tehran, Iran) M.Sc. in Electrical Engineering, Communications System University of Tehran (Tehran, Iran) B.Sc. in Electrical Engineering, Communication	Jan. 2017-Present GPA : 4/4 2013-2015 GPA : 19.11/20 2009-2013 GPA : 18.67/20
RESEARCH INTERESTS	<ul style="list-style-type: none">• Computational imaging, Geometric signal reconstruction, Signal processing• Machine learning, Generative modeling• Computer vision	
SKILLS	Python, PyTorch, Matlab, C++, HTML, Github, Vim. Signal processing, Computational imaging, Deep learning, Machine learning.	
WORK EXPERIENCE	Apple Inc. Machine Learning Intern Apple Inc. Machine Learning Intern (part-time) Apple Inc. AI/ML Intern SafelyYou AI Summer Intern Ecole Polytechnique Federale de Lausanne (EPFL) Research Intern 3D refinement in cryo-electron microscopy (cryo-EM) Hong Kong Univ. of Science and Technology (HKUST) Research Intern Physical layer caching and Coordinated Multi-point transmission (CoMP) in cellular networks Chinese Univ. of Hong Kong (CUHK) Research Intern Cellular load balancing via relay nodes at the cell edges	May-Aug. 2021 Oct.-Dec. 2020 June-Aug. 2020 May-Aug. 2019 May-Aug. 2018 Sept.-Dec. 2015 July-Sept. 2015
SELECTED PUBLICATIONS	(* Equal contribution) T-H. Hoang*, M. Zehni*, H. Xu, G. Heintz, C. Zallek, M. N. Do : Towards a Comprehensive Solution for a Vision-based Digitized Neurological Examination, IEEE Journal of Biomedical and Health Informatics (JBHI), 2022. M. Zehni and Z. Zhao, MSR-GAN : Multi-segment Reconstruction via Adversarial Learning, International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2021. M. Zehni and Z. Zhao, UVTomo-GAN : An Adversarial Learning based Approach for Unknown view X-ray Tomographic Reconstruction, International Symposium in Biomedical Imaging (ISBI), 2021. S. Messaoud, I. Lourentzou, A. Boughoula*, M. Zehni*, Z. Zhao, C. Zhai, A. G Schwing, Deep-QAMVS : Query-Aware Hierarchical Pointer Networks for Multi-Video Summarization, ACM SIGIR Conference on Research and Development in Information Retrieval, July 2021. M. Zehni, Minh N. Do, and Z. Zhao, DeepSharpen : Deep-learning based Sharpening of 3D Reconstruction Map from Cryo-Electron Microscopy, in ISBI workshops, 2020. M. Zehni*, S. Huang*, I. Dokmanic, and Z. Zhao, 3D Unknown View Tomography via Rotation Invariants, in ICASSP, 2020. M. Zehni, L. Donati, E. Soubies, Z. Zhao and M. Unser, Joint Angular Refinement and Reconstruction for Single-Particle Cryo-EM, Transactions on Image Processing (TIP), 2020. M. Zehni, S. Huang, I. Dokmanic, and Z. Zhao, Geometric Invariants for Sparse Unknown View Tomography, in ICASSP, 2019. H. Chen, M. Zehni, and Z. Zhao, A Spectral Method for Stable Bispectrum Inversion with Application to Multireference Alignment, IEEE Signal Processing Letters, July 2018. M. Zehni, M. N. Do, and Z. Zhao, Multi-segment Reconstruction Using Invariant Features, in ICASSP, 2018.	

PRE-PRINTS	<p>M. Zehni, Z. Zhao, An Adversarial Learning Based Approach for Unknown View Tomographic Reconstruction, arXiv e-prints, 2021.</p> <p>M. Zehni, Shaona Ghosh, Krishna Sridhar, Sethu Raman, Joint Learning of Portrait Intrinsic Decomposition and Relighting, arXiv e-prints, 2021.</p>
ACADEMIC ACHIEVEMENTS	<p>Firdawsi Science Fellowship, UIUC 2022</p> <p>Recipient of Shun Lien Chuang Memorial Award for Excellence in Graduate Education, UIUC 2021</p> <p>Mavis Future Faculty Fellowship (MF3), UIUC 2021</p> <p>Oral presentation at ICASSP 2020</p> <p>Ranked 1st/140+ EE students in M.Sc., Sharif University of Technology 2015</p> <p>Ranked 2nd/19,000+ in Telecommunications major and 9th/44,000+ in EE major in M.Sc. nationwide university entrance exam 2013</p> <p>Ranked 3rd/130+ in B.Sc., University of Tehran 2013</p> <p>Recipient of Faculty of Engineering (FOE) award, University of Tehran 2011-2013</p> <p>Ranked 70th/200,000+ and 228th/400,000 in B.Sc. nationwide university entrance exam 2009</p> <p>Bronze medal in National Chemistry Olympiad 2008</p>
RESEARCH EXPERIENCE	<p>3D Tomographic Reconstruction and Refinement, UIUC</p> <ul style="list-style-type: none"> — Develop techniques for recovering and refining 3D structure of macromolecules from cryo-electron microscopy (cryo-EM) projection data and low-resolution 3D maps. — Develop moment-based methods to reconstruct 3D point source signals from noisy projection images with random views. <p>2D Unknown View Tomography, UIUC</p> <ul style="list-style-type: none"> — Develop various techniques (adversarial learning, likelihood and graph-Laplacian based) to reconstruct an image given noisy projection data with unknown views. — Develop moment-based methods to reconstruct 2D point source signals from projection data. <p>Multi Segment Reconstruction, UIUC</p> <ul style="list-style-type: none"> — Develop various methods (adversarial learning, likelihood and moment based) to recover 1D signals from noisy partial/randomly shifted observations. <p>Quantification of Neurological Screening Tests, UIUC</p> <ul style="list-style-type: none"> — Develop vision-based and machine learning based techniques to quantify and detect abnormalities in patients with neurological diseases. <p>Content Distribution in Opportunistic Networks, Sharif University of Technology</p> <ul style="list-style-type: none"> — Designed dissemination algorithms based on contents' features. Mathematically analyzed the temporal behavior of the designed dissemination scheme. <p>Resource Allocation of Device to Device Communications, Sharif University of Technology</p> <ul style="list-style-type: none"> — Designed heuristic orthogonal, non-orthogonal and semi-orthogonal resource allocation schemes.
TALKS	<p>An adversarial learning based approach for unknown view tomographic reconstruction, <i>CSLSC 2022</i></p> <p>Deep-learning based 3D map sharpening in cryo-electron microscopy, UIUC <i>CSLSC 2020</i></p> <p>Multi-segment reconstruction using invariant features, UIUC <i>CSLSC 2018</i></p>
COURSES	<ul style="list-style-type: none"> • Pattern recognition, Computer vision • Vector space signal processing, Digital signal processing II, Digital imaging, Linear algebra • Introduction to optimization • Random processes, Information theory, Estimation theory
SERVICE	<p>Reviewed papers for :</p> <ul style="list-style-type: none"> • SIAM Journal on Imaging Sciences • ICCV 2021 workshop • ICASSP 2021, ICASSP 2022, ISIT 2022
TEACHING ASSISTANTSHIP	<p>Data science and engineering, ECE365 UIUC <i>Fall 2021</i></p> <p>Probability with engineering applications, ECE313 UIUC <i>Fall 2020</i></p> <p>Probability with engineering applications, ECE313 UIUC <i>Fall 2019</i></p> <p>Vector space signal processing, ECE513 UIUC <i>Spring 2019</i></p> <p>Digital signal processing, ECE310 UIUC <i>Spring 2018</i></p>